FACT SHEET: RECYCLING Of USED LEAD-ACID BATTERIES

Businesses and individuals generate thousands of used lead-acid batteries annually. These are primarily automotive-type batteries. This fact sheet provides tips on proper battery management, including how to make a battery last longer and how to recycle it when it can no longer be used. It is intended to be used as guidance only.

Always consult with your local, county or state Department of Environmental Quality office prior to beginning any battery recycling program.

Before recycling A high quality, well maintained lead-acid battery can last a long time. As consumers, keep these tips in mind:

* Purchasing--be sure to buy the most efficient, longest-lasting battery available. At the time of purchase, make sure your vendor will take back a used battery and have it properly recycled;

* Maintenance--keep your battery serviced so it will operate efficiently;

* Recharging--before discarding a used lead-acid battery, consider whether it can be recharged and reconditioned for use.

Why recycle?

If not handled properly, used lead-acid batteries can leak or spill and contaminate soil and groundwater. Both lead and acid may be harmful to humans and the environment.

It is unnecessary to throw away lead-acid batteries because they provide a valuable raw material. Battery manufacturer's value used lead-acid batteries as an important source of lead for new batteries.

It is illegal to dispose of lead-acid batteries in landfills. Where to recycle? In most states, thousands of batteries are collected and shipped out of state for reclaiming of lead to be used in manufacturing.

* Return a used battery to your vendor when you purchase a new one.

* Drop off used batteries at your community's spring clean-up or household hazardous waste program. Contact your local government officials to determine whether this service is available in your community.

How to store?

Indoor storage is preferable to outdoor storage to avoid contact with water and to avoid extreme

temperatures that can cause cracking. Rain, snow, and draining water should not enter storage area.

* Store used batteries on a non-reactive, impermeable and curbed surface. A non-reactive and impermeable surface will help insure that lead-contaminated sulfuric acid will not corrode the floor and leak through into the soil and ground water. Curbing (high edges) will prevent leaks or spills from running off the edge.

* Coat asphalt or concrete storage surfaces with an acid-resistant epoxy, fiberglass, or plastic coating.

* A wooden frame lined with heavy polyethylene (20 to 40 mil thick may also be used to store batteries. Check it regularly for cracks or tears.

* Some communities use large polyethylene fish totes without drains to store used lead-acid batteries.

* To avoid releases of lead contaminated acid, make sure that there are no floor drains which lead outdoors or which connect to sewer systems, storm drains, or septic tanks.

How to prevent leaks and manage spill?

* Avoid stockpiling spend lead-acid batteries.

* Store batteries upright to protect against acid leaks through vent holes.

* Inspect batteries weekly for cracks or leaks. Keep a log of your inspections. If batteries have been exposed to freezing temperatures inspect them more often.

* Place cracked or leaking batteries in an acid-resistant, leak-proof container such as a sturdy plastic tote.

* Small acid spills should be contained and can be neutralized using lime or bicarbonate soda.

* Spills may need to be reported to your local Environmental office. Confer with your local environmental representative to determine the most appropriate cleanup and disposal option for your situation.

How to stack and package batteries?

* Package batteries according to federal Department of Transportation regulations.

* Get assistance from a battery specialist who is shipping spent batteries out of state for recycling.

* Stack batteries pole side out to increase stack stability.

* Stack batteries in layers no more than five high.

* Place same-size batteries on pallets and separate layers with a shock-absorbing material.

* Shrink-wrap, band and properly label.

* Generally, batteries are packaged three layers high.

* Leaking batteries must be shipped in leak-proof containers, separately from intact batteries.

How often to recycle? Businesses should transport spent batteries to battery retailers on a monthly basis. Battery handlers should arrange for shipping at least once every six months, depending on the volume accumulated.

How are batteries recycled?

The State of Arizona has regulations regarding the disposal of lead batteries. According to Arizona Revised Statute (ARS) §44-1322, the disposal of lead/acid batteries in landfills and the incineration of those batteries is prohibited in the state. The statute requires lead/acid batteries to be sent to a permitted secondary lead smelter, a battery manufacturer or a recycling facility.

In many states used lead-acid batteries are collected and shipped out of state for recycling. They are sent to secondary smelters or overseas to Asian markets. There the acid is neutralized, the lead reclaimed for use in manufacturing new batteries, and the plastic casing either melted down for reuse or put in a landfill.

There have been some reports of environmental problems caused by stockpiling and inadequate handling of used batteries overseas. Make sure that your battery handler is shipping their used batteries to a responsible recycler to avoid any future public health or environmental problems.

Summary of regulatory requirements for battery recycle

1. A facility that collects batteries for the purpose of shipping them to a reclaimer is not subject to RCRA regulations under 40 CFR parts 262-266 (see 266, subpart G).

2. If a facility chooses to empty the acid out of the battery and neutralize it in an elementary neutralization unit, this makes the facility a generator. They must then notify EPA of their generator status if they generate more than 100 kg. per month. Generators may be required to have a contingent plan, spill prevention plan, and training records, per 40 CFR 262.34.

3. If the facility collecting the batteries has a spill causing a release of a characteristic waste (i.e. acid) prior to being shipped to the reclaimer, then Discharge, Reporting, Clean-up and Disposal requirements may come into play.

If the facility has had a history of spills they may be subject to CERCLA.

4. 49 CFR 171-179 specifies DOT regulations for packaging, shipping, labeling, and placarding of batteries. Batteries must be packaged to be capable of withstanding shocks, protected against short circuits, etc.

5. Pallets must be marked with "corrosive" label, shipping papers must include proper UN number and description, and vans must be properly placarded.

6. Battery handlers should wear safety equipment to protect against contact with corrosive materials--gloves, apron, and face shield should be worn.

7. Leaking batteries should be handled separately. A common practice is to put battery in drum with soda ash to neutralize acid.

Additional requirements are specified in 49 CFR 173.3.

Note: The information above provides only a summary of battery regulations.
Contact the state Hazardous Waste Program or federal DOT for more details.

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